apparatus for experiments in voltaic electricity we notice a useful school galvanometer, having several novel features, and constructed in such a way that it can be entirely dismounted so as to explain the method of construction before the students in a class. Great care appears to be taken in the manufacture of resistance coils, all of them being tested and adjusted to within one-hundredth per cent. or one per cent. (according to price) of their value. In the magnetic section an interesting instrument described is Lenard's bismuth spiral for measurements of magnetic fields. The principle upon which the instrument is based is the change of resistance that occurs in bismuth when in a magnetic field; the alteration of resistance affording a means of determining the number of lines of force in the field tested. Many other instruments mentioned in the list show that Messrs. Griffin keep in touch with recent advances and educational requirements.

THE *Electrical Review* for November 25 contains an interesting account, with illustrations, of the electrolytic chlorate works at St. Michel in Savoy. Power is supplied by the river Arc, sixteen turbines, each keyed to a dynamo, being employed. The solution of potassium chloride is placed in insulated vats lined with lead, and having a capacity of 11,000 gallons. The anodes are of platinum-iridium, and the kathodes of iron-nickel alloy. The primary electrolytic action is, of course, the resolution of the potassium chloride into potassium and chlorine; the potassium, however, forms potassium hydrate, and liberates hydrogen at the kathode. The potassium hydrate so formed is now brought under the influence of the chlorine liberated at the anode; and as a sufficient current density is employed to keep the temperature above 45°, the action proceeds according to the equation $6KOH + 3Cl_2 = KClO_3 + 5KCl + 3H_2O$. The chlorate is easily separated from the more soluble chloride by crystallisation. The works at St. Michel, and another at Vallorbes, are said to produce together 1800 tons of chlorate per annum. The introduction of the electrolytic process has resulted in a considerable fall in the price of chlorates.

THE additions to the Zoological Society's Gardens during the past week include a Mozambique Monkey (*Cercopithecus pygerythrus*) from East Africa, presented by Mr. A. D. Michael; a Mantell's Apteryx (*Apteryx mantelli*) from New Zealand, presented by Sir Walter Buller, K.C.M.G., F.R.S.; two Dwarf Chameleons (*Chamaeleon pumilus*) from South Africa, presented respectively by Mrs. Todd and Mrs. C. Faraday Maypee; a Black Ape (*Cynopithecus niger*) from the Celebes, an Osprey *Pandion haliaetus*) captured at sea, a Praslin Parrot (*Coracopsis barklyi*) from Praslin Island, a Bell's Cinixys (*Cinixys belliana*) from Tropical Africa; a Home's Cinixys (*Cinixys homeana*) from West Africa, three Painted Terrapins (*Chrysemys picta*), a Salt-water Terrapin (*Malacoclemmys terrapin*) from North America, three Reeve's Terrapins (*Damonia reevesi*), a Black-headed Terrapin (*Damonia reevesi unicolor*) from China, four Caspian Terrapins (*Clemmys caspica*) from Western Asia, a Japanese Terrapin (*Clemmys japonica*) from Japan, four European Pond-Tortoises (*Emys orbicularis*), European, a Ceylonese Terrapin (*Nicoria trijuga*) from India, two Blackish Sternotheres (*Sternothaerus derbianus*) from Madagascar, a Spix's Platemys (*Platemys spixi*) from Brazil, a Common Chameleon (*Chamaeleon vulgaris*) from North Africa, two Rufescent Snakes (*Leptodira hotamboeia*) from South Africa, deposited.

OUR ASTRONOMICAL COLUMN.

THE NEW COMET CHASE.—This comet seems to be brightening, and is now in a good position for observation. It is moving slowly towards the north-west, being situated now in the southern part of the constellation of Leo Minor, roughly in a prolongation of the line joining η and γ Leonis. The Centralstelle sends us a circular (No. 15), which informs us of the elements and a brief ephemeris computed by Coddington from observations made on November 23, 24 and 25. Another circular (No. 16), which has just come to hand, informs us of more accurate elements and ephemeris which have been computed by Herr. J. Müller from two Harvard photographs taken on November 14, and two Lick observations made on November 23 and 25. These are as follows:—

T = 1898 September 8·192 Berlin M.T

$$\left.\begin{aligned} \omega &= 358^\circ\ 43'{\cdot}83 \\ \Omega &= 93\ 49{\cdot}05 \\ i &= 21\ 35{\cdot}35 \end{aligned}\right\} 1898{\cdot}0$$

$$\log q = 0{\cdot}33144$$

Ephemeris, Berlin Midnight.

1898.		R.A. h. m. s.		Decl. ° ′		Br.
Dec. 8	...	10 41 13	...	+25 3·2	...	1·4
,, 10	...	10 43 32	...	25 17·9	...	1·4
,, 12	...	10 45 45	...	25 33·3	...	1·4
,, 14	...	10 47 51	...	+25 49·3	...	1·4

THE NEBULA OF ANDROMEDA.—The variation in brightness of a portion of the nebula of Andromeda, as announced by Seraphimoff some weeks ago, does not seem to have been generally corroborated, and the observations of Prof. Barnard (*Astrophysical Journal* for November) do not suggest any variation. In June and July of the present year this observer made a series of measures of the nucleus with reference to two eleventh magnitude stars, one preceding and the other south, and during this time the nucleus was well seen, though not stellar. No trace of the Nova of 1885, although carefully looked for, could be observed. After Seraphimoff's announcement both the 40-inch and the 12-inch telescopes were turned on to the nebula, but "it was evident that no perceptible change had occurred in the nucleus or the nebula itself . . . and the impression has always been that the nebula is unchanged."

Not only this observer, but both Hartwig at Bamberg and Comas Sola at Catala (*Astr. Nach.* No. 3529), record no variation; the former from eye observations and the lattet from photographs taken before and after the announcement mentioned above.

THE PLANET WITT DQ.—In a previous number of NATURE (November 3) we brought together much of the information that had been published concerning the interesting new planet discovered by Witt. The importance of this small planet, which at times approaches the sun nearer than Mars, necessitates that it should be closely watched, and its motion accurately determined. Needless to say, such observations are being carried out in many observatories, so that when a sufficiently large part of the orbit has been described we shall be presented with more accurate elements. The elements previously published by Berberich show now deviations from the true ones as gathered from the observed and calculated positions of the planet. Mr. H. N. Russell, of Princeton (the *Astronomical Journal*, Nos. 448–450), has formed some new normal places from a comparison of several observations, and the elements he has deduced differ somewhat from those previously published. Millosevich, in an interesting contribution to the *Rendiconti della R. Accademia dei Lincei* (vol. vii., series 5A), has also computed some new elements, so we give the following comparison:

	Berberich.	Russell.	Millosevich.
Epoch.	1898 Aug. 31·5. M.T. Berlin.	id.	id.
	° ′ ″	° ′ ″	° ′ ″
M	220 14 3·7	224 33 12·3	222 23 28·7
ω	178 28 26·2	175 47 50·1	170 1 20·8
☊	0 3 48 53·0 1898·0	303 20 20·3 1898·0	303 24 53·1 1898·0
i	311 6 57·1	10 45 1·8	10 45 18·1
φ	13 13 3·8	12 55 13·6	12 49 5·4
μ	2010″·131	2003″·86	2015″·119
log *a*	0·164521	0·1654245	0·163804
Period	645 days.	646·75 days.	644·06 days.

Prof. Simon Newcomb, in the same number of the *Astronomical Journal*, refers to the future oppositions of this planet

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for the determination of solar parallax. The next most favourable opposition will occur in 1900 in November and December, so he gives a rough ephemeris for this period of approach. As this table will probably be useful for reference, we reproduce it below :—

	α	δ	Δ
	h. m.	°	
1900 Nov. 15	1 56	+ 54·7	0·358
20	45	54·0	·346
25	38	52·7	·336
30	32	51·5	·328
Dec. 5	30	49·7	·322
10	32	48·2	·314
15	34	46·0	·309
20	42	43·9	·310
25	1 48	+ 41·3	0·308

In the northern hemisphere the position of the planet among the stars can be fixed from hour to hour both by the photographic telescope and the heliometer. "The combination of observations," as Prof. Newcomb remarks, "in the eastern and western hemispheres will then, it may be hoped, suffice for the best determination of the solar parallax yet made by direct measurement."

A NEW ALGOL VARIABLE.—Mr. Edwin F. Sawyer describes, in the *Astronomical Journal* (Nos. 448–450), the observations of a variable which he shows to be of the Algol type. The star in question is D.M. +12° 3557, and has a period of 21h. 21m., the fluctuations in brightness being about half a magnitude, namely, from 7·0 to 7·5. The intervals of time from maximum to minimum and from minimum to maximum occupy individually two hours and a half. The table containing the observations, which Mr. Sawyer has made between September 15, 1895, and October 27 of this year, shows that the star was near its minimum on September 9 and 16, October 3, 10, 11, 12, 20 and 27. Combining these observations with others made at Potsdam, the epoch and period have been approximately determined as 1898 October 3, 13h. 1m. Greenwich mean time, and + 0d. 21h. 21m. E. respectively. It is not without interest to note that this star, which is No. 2510 of the *Potsdam Photometric Catalogue*, was observed once each by Kempf and Müller on September 24, 1888, as 7·74m., and on October 29, 1890, as 7·57m. On each of these occasions the variable was near a minimum; but as the observations agreed so well, the final value 7·66m. was entered in their catalogue. The magnitude given in the *Durchmusterung* was 7·0.

THE GEMINIDS.—So unfavourable was the weather for meteor observations during last month, that it is very doubtful whether the Leonids and Andromedes were observed at all in England. At the end of this week, December 10–12, there will be a well-known shower emanating from Gemini; but although furnishing us with thirty or forty meteors in an hour, it does not compare with the sometimes magnificent displays that have been set down to the other two meteor swarms above mentioned. The absence of the moon on this occasion should render observations favourable.

THE ANNIVERSARY MEETING OF THE ROYAL SOCIETY.

ON Wednesday in last week, being St. Andrew's Day, the Anniversary Meeting of the Royal Society was held in their apartments at Burlington House. The Auditors of the Treasurer's accounts having read their report, and the Secretary having read the list of Fellows elected and deceased since the last anniversary, the President (Lord Lister) proceeded to deliver the anniversary address. After the first part, containing obituary notices of the deceased Fellows, it proceeded as follows :—

The business of the Society during the past year has been fully dealt with in the Report of the Council[1]; and I have little to add to that statement. On the death of Sylvester, it occurred to some admirers of his great mathematical genius that it would be well to create a permanent memorial of him in connection with the Society by founding a medal to be called after his name. The Council, though not disposed as a general rule to add to the numerous distinctions of that character already at their disposal, felt that this was an exceptional case, partly on the ground of Sylvester's great distinction, and partly because, while there are several specialised medals, there is none devoted to the supremely important subject of pure mathematics. They, therefore, expressed their grateful approval of the proposal; and I have now to announce that the fund raised for the purpose being closed, amounting to rather more than 880*l*., a clear capital of 800*l*., together with the dies, will shortly be transferred to the Society. The dies are being engraved after designs by Sir John Evans.

The help given in this matter by our Treasurer is but a small sample of the multitude of services which he has rendered to the Society during the past twenty years, in addition to the discharge of his official duties. How well these have been performed they only can know who, like myself, have served with him in office. The debt which the Royal Society owes to Sir John Evans has been referred to by the Council in terms of high, though not exaggerated, eulogy. I cannot but add the expression of my personal sense of the deep, I had almost said the irreparable loss which the Society sustains by his retirement.

The question who should be recommended to your suffrages as his successor has engaged the anxious deliberation of the Council. As stated in the report, various considerations have weighed with them. But I feel confident that, as time passes, the wisdom of the decision arrived at will be universally recognised.

Sir George Hamilton has, I believe, done wisely in sending out to India a British Commission, containing a majority of scientific experts, to inquire into the subject of the Plague; and I am glad that so distinguished a Fellow of the Society as Prof. Fraser of Edinburgh has been able to accept the position of Chairman.

The recent sad occurrences at Vienna may suggest the fear that our countrymen engaged in this duty, will be subjected to grave danger. But the disease as it showed itself in Vienna, was of an entirely exceptional form; and if we consider how few of the medical men and nurses who have for a long time past been engaged in actual attendance on plague-stricken patients, have fallen victims to the disease, we may dismiss from our minds the idea of any serious risk to the commissioners.

Their chief duties will, I believe, be to sift and report upon the somewhat heterogeneous and scattered pieces of evidence already published by various observers as to the nature and modes of transmission of the complaint, and the best means of dealing with it. One of the subjects which will engage their attention will be the efficacy or otherwise of the preventive injections of Monsieur Haffkine. On this question our Fellows are likely to have an opportunity of judging for themselves; for Haffkine himself has agreed to come over to this country in May, a time of the year at which his services in India can best be spared, in order to bring his facts before us at one of the "meetings for discussion."

There is no subject in Biology of greater interest at the present time, whether in a scientific or practical point of view, than that of the "serum therapeutics" of infective diseases. According to a recent report, which bears throughout the characters of authenticity,[1] a great success in this direction has been lately achieved. Mr. Chamberlain, whose enlightened action regarding malaria and allied disorders in Africa, has been referred to in the Council's report, consulted the Royal Society about two years ago as to the possibility of devising some means of arresting the fearful ravages of rinderpest among the cattle in the southern parts of that continent. The stamping-out process by wholesale slaughter which, at great expense to the country, formerly proved effectual in England, could not be thought of in South Africa, whose vast regions are sparsely populated, while buffaloes and other animals beyond human control are able to contract and spread the disease. But could nothing be done by modern scientific methods? The subject appeared full of hope, because, as was shown long ago in this country by Burdon-Sanderson, rinderpest resembles small-pox in the fact that one attack, if recovered from, protects against a recurrence of the disease.

Mr. Chamberlain was fortunate in securing, with the consent of the German Government, the services of that distinguished bacteriologist, Prof. Koch. We rejoiced to read the reports of his masterly researches and of the brilliant results which he obtained, promising to effect all that could be desired. The

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[1] This Report has not reached us.

[1] *Vide* "Rinderpest in South Africa," by John Maberly. *The Lancet*, November 5, 1898.

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